

ATTACHMENT A
California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2017-0033

Farm Plan Requirements

Introduction

This Order requires Dischargers to prepare and implement a Farm Plan¹ that controls sediment discharges and storm runoff increases from vineyards and roads, and also controls pesticide and nutrient discharges from vineyards, as needed to attain the performance standards described in this attachment. Once the Farm Plan has been Verified², and/or has been approved by the Water Board a copy of the Farm Plan shall be kept at the Vineyard Property and be available for review by Water Board staff upon request. The process for approval of a Third-Party Program is as specified in Attachment C to this Order. Except in cases of an unauthorized discharge or emergency circumstances, Water Board staff will typically provide Dischargers a minimum of 72 hours advance notice prior to inspection. Only Water Board staff, or other individuals authorized by the Discharger will inspect the Vineyard Property. Table 1 of this attachment defines the schedule for compliance as related to attainment of performance standards for discharge (specified in Section 3 herein) and also for Farm Plan submittal.

1. Approach and Scope

The Farm Plan shall be based on an inventory of the vineyards, roads, reservoirs, and waterways located throughout the Vineyard Property³ to document the conservation practices already in-place, and/or to prescribe additional best management practices (BMPs) that will be implemented and maintained to comply with all conditions of this Order. As follows “existing” (e.g., Vineyard Property, vineyard, road) means the feature is in-place prior to adoption of this Order, and “new” refers to the feature being constructed subsequent to adoption.

¹ The “Farm Plan” documents natural features, developed areas, and best management practices (BMPs) implemented to achieve applicable performance standards for discharge. Its scope and contents are as defined herein.

² “Verified” means that an approved Third-Party Program has coordinated a technical review of the Farm Plan by a Qualified Professional who has signed - the Farm Plan, a verification form, or a letter - to indicate that she/he concludes that upon full implementation the Farm Plan would achieve all applicable performance standards for sediment and storm runoff control. Although a Verified Farm Plan receives technical review, it remains the Discharger’s responsibility to ensure the Farm Plan is implemented to achieve all applicable performance standards for discharge. Third-Party Program verification does not constitute an approval of the Farm Plan.

³ A “Vineyard Property” is defined by a parcel or contiguous parcels under the same ownership, each of which is developed to include a vineyard..

2. Base Map

The base map for the Farm Plan shall include the entire Vineyard Property and may be an aerial photograph, topographic map, LiDAR derived shaded relief map, Google Earth image, or equivalent that depicts features at 1:6000 or larger scale (a 1:2400 scale base map is recommended so that smaller features including stream channels, riparian corridors, vineyard drainage structures, reservoirs, roads, etc. can be discerned and delineated accurately).

Topography shall be delineated to distinguish the land areas where the average ground surface slope is < 5 percent, 5-to-30 percent, and those areas > 30 percent, and also shall include 5-to-40 foot (consistent with US Geological Survey 7.5 minute quadrangle conventions), or higher resolution contour intervals.

The Vineyard Property base map(s) shall include a north arrow and delineate the following:

- Property boundaries;
- Parcel boundaries and identifiers (APN numbers);
- Geomorphic terrane units (see Water Board, 2009, pp. 19-21) and/or soil series (with series identifier and erosion potential rating);
- Boundaries of vineyard blocks (showing row direction, slope, and block ID);
- Engineered drainage structures (e.g., subsurface drainage systems, underground outlets, diversion ditches, lined waterways or outlets);
- Vineyard avenues;
- Non-vineyard land uses (grazing areas; winery area, etc.);
- Farm buildings, agrichemical handling and mixing sites, agrichemical storage facilities, and equipment yards and/or staging areas;
- All channels including Class I, II, and III, and also human-made waterways/ditches;
- All water wells (agricultural, domestic, winery, unused, or abandoned) and streamflow diversion structures;
- Springs and seeps;
- Reservoirs, ponds, and lakes;
- All roads and road crossings, with road surface type (paved or unpaved) and crossing type (culvert, bridge, ford, etc.) also delineated; and
- Known active or potentially active landslides⁴, soils with high erosion hazards, and known active or potentially active gullies.

⁴ Mapped landslides and/or areas with a high potential for future landsliding may be identified based on field observations, aerial photo interpretation, and/or review of published information including: California Geological

3. Performance Standards for Discharge.

BMPs shall be installed and maintained as needed throughout the Vineyard Property to achieve the following performance standards:

- a) Soil erosion in the Farm Area⁵: soil loss rate \leq tolerable soil loss rate. The tolerable soil loss rate is as defined by the USDA Soil Conservation Service (1994).
- b) Sediment delivery from existing unpaved roads (Hillslope Vineyards only): a) culvert inlets have a low plug potential⁶; b) critical dips shall be installed at culverted crossings that have a diversion potential; and c) \leq 25 percent of the total length of unpaved roads are hydrologically connected⁷.
- c) Sediment delivery from new roads (Hillslope Vineyards only): all new roads, (unpaved and/or paved) shall be storm-proofed roads (see below, **Storm-Proofed Roads**).
- d) Storm Runoff from an existing Hillslope Vineyard⁸: shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, **Bed and Bank Erosion**).
- e) Storm runoff from a new Hillslope Vineyard: a) peak storm runoff⁹ in 2-, 10-, 50-, and 100-year (24-hour duration) rainfall events following vineyard development shall not be greater than pre-development peak storm runoff (see below, **Peak Storm Runoff**)¹⁰; and b) shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, **Bed and Bank Erosion**).
- f) Pesticide management: An integrated pest management program shall be developed and implemented for the vineyard (UC Statewide IPM Program, 2015), and effective practices shall be implemented to avoid mixing, storage, or application of pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity.

Survey (2016), US Geological Survey (1997a), and US Geological Survey (1997b). Also, a Debris Flow Potential Map developed for the Water Board by UC Berkeley is available upon request.

⁵ The Farm Area includes all vineyard blocks, lanes, and avenues. Vineyard lanes and avenues are the field roads along the edges and/or in between the vineyard blocks.

⁶ Trash barriers or deflectors are installed where needed. For additional guidance, please see Weaver et al. (2014), "Culvert Inlet and Outlet Treatments", pp. 137-143.

⁷ Hydrologic connectivity refers to the length or proportion of a road that drains runoff directly to streams or other water bodies. Any road segment that has a continuous surface flow path to a natural stream channel during a storm runoff event is termed a hydrologically connected road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces.

⁸ A "Hillslope Vineyard" is defined by grapes planted on an average slope > 5 percent. The method for determining slope is as specified by Napa County:

<http://www.countyofnapa.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=4294967662> . An "existing" Hillslope Vineyard is one that was planted prior to adoption of this Order.

⁹ Peak runoff is defined as the instantaneous maximum value for discharge during a storm runoff event.

¹⁰ Attainment of this performance standard shall be evaluated prior to vineyard development through site-specific hydrologic modeling. In modeling runoff, ripping of soils shall not be inferred to result in a long-term increase soil infiltration capacity, and Hydrologic Soil Group Classification shall not be modified.

- g) Nutrient management: Best management practices to guide nutrient applications (e.g., fertigation, cover crops, soil amendments, plant and/or soil testing) shall be implemented as needed to protect water quality.

Further Specification of Performance Standards for Discharge

Peak Storm Runoff: The model developed to evaluate attainment of the peak storm runoff performance standard, as specified above, shall include and be consistent with all of the following;

- Pre- and post-project peak runoff estimates shall be provided for each sub-watershed area that drains into a vineyard drainage outfall. The size of the sub-watershed area is dictated by the drainage area lying upslope of each drainage structure outfall directing runoff from a vineyard block.
- Pre- and post-project peak flow estimates shall also be quantified at all locations where runoff exits the property (e.g., swales, creeks, ditches).
- Numerical modeling shall include hydraulic computations that integrate routing of flow through drainage elements such as pipes, surface ditches, rock/grass-lined swales, sedimentation basins, etc. into the numerical rainfall-runoff model.
- Numerical modeling shall include and account for all types of runoff from roads that drain into modelled sub-watershed areas.
- Numerical modeling shall include routing of flow through proposed BMP structures that would be implemented to control erosion and/or attenuate runoff.
- BMP structures shall be designed to address predicted project hydraulic conditions, such as water depth and velocity.
- Similar to vineyard drainage elements, routing of flows through BMPs (e.g., flow control structures, energy dissipaters/outlet protection, rock lined ditches, check dams, sediment basins, slope drains, streambank stabilization structures, and gravel berms) may alter runoff rate, and therefore, shall be integrated into the model/hydrologic analysis.
- A comprehensive description of the modeling approach, methods, assumptions, and peak flow estimates shall be integrated into the erosion control plan.

Storm-Proofed Roads (applies only to new roads built within a Hillslope Vineyard Property) (as defined by Weaver et al. (2014) shall meet the following specifications (as applicable):

- Stream crossings have a drainage structure designed for the 100-year flood flow including woody debris and sediment (Cafferata et al, 2004).
- Stream crossings do not have diversion potential.
- Culvert inlets have a low plug potential (trash barriers or deflectors are installed where needed).
- Culverts are installed at the base of the fill and in line with the natural channel.
- Emergency overflow culverts that emerge higher in the fill have full round, anchored downspouts that extend to the natural channel.
- Deep fills (deeper than a backhoe can reach from the roadbed) with undersized culverts or culverts with high plugging potential are fitted with an emergency overflow culvert.

- Bridges have stable, non-eroding abutments and do not significantly restrict 100-year flood flow.
- Stream crossing fills are stable.
- Approaching road surfaces and ditches are “disconnected” from streams and stream crossing culverts to the maximum extent feasible using road shaping and road drainage structures.
- Class I (fish-bearing) stream crossings meet State Fish and Wildlife and National Marine Fisheries Service fish passage criteria.
- Road surfaces and ditches are hydrologically “disconnected” from streams and stream crossing culverts. Road surface runoff is dispersed, rather than collected and concentrated.
- Ditches are drained frequently by functional ditch relief culverts and/or rolling dips.
- Outflow from ditch relief culverts does not discharge to streams.
- Ditches and road surfaces drainage does not discharge (through culverts and/or rolling dips) onto active or potential landslides, and/or into gullies.
- Fine sediment contributions from roads, cutbanks, and ditches are minimized by utilizing seasonal closures and installing a variety of surface drainage techniques including road surface shaping (outsloping, insloping or crowning), rolling dips, ditch relief culverts, water bars and other measures to disperse road surface runoff and reduce or eliminate sediment delivery to the stream.

Bed and Bank Erosion: the performance standard for bed and bank erosion downslope of a Hillslope Vineyard is evaluated and achieved as follows:

1. Review available information including: property land-use and natural disturbance history; vineyard design and management practices; natural and engineered drainage features; and soil, geology, landslide, and topographic maps.
2. Conduct a field survey¹¹ to evaluate and document channel condition, beginning at the point(s) of discharge from the Hillslope Vineyard along overland flow pathways and/or into the receiving channel(s), downstream to the first response reach (e.g., gravel-bedded channel reach with a slope ≤ 0.02), and/or to the property boundary (whichever is encountered first).

As technically and economically feasible, at sites where a Hillslope Vineyard discharges into an Unstable Area,¹² as a precaution the Discharger shall implement additional BMPs to attenuate Vineyard Property storm runoff. For example, these BMPs may include establishment of no-till cover crops, application of composted mulch, soil amendments to increase organic matter content (e.g., crop residues, manure, and/or compost), installation of level-spreaders, disconnecting existing drainage pipe systems, and/or construction of detention basins. Also, as technically and economically feasible, the Discharger shall implement soil bioengineering projects to control erosion in actively eroding gullies and landslides, and also in channel reaches that are down-cutting and/or head-cutting. Example soil bioengineering projects are described in Marin Resource Conservation District (2007).

¹¹ At a minimum, the field survey shall be conducted once every five years, and also following a 5-year or greater recurrence interval peak discharge, that is $\geq 10,000$ cfs at the Napa River near St. Helena gage.

¹² Unstable areas include down-cutting and/or head-cutting stream channels, gullies, and/or landslides.

Where a Hillslope Vineyard discharges into an unstable area, cross-section and photo-point monitoring is required to evaluate erosional volume and response to BMP implementation and other factors (see Attachment E, p. E-6 for specific details).

4. Performance Standards for Stream and Riparian Habitats¹³ (only applicable to unconfined alluvial channel reaches)

To qualify for enrollment in Tier 1, stream-riparian habitats shall be fully protected by:

- a) Establishing and maintaining stream setbacks, as measured from the top of bank, along all unconfined alluvial channels¹⁴ that are on average ≥ 1.5 times the bankfull width (see Table 2 for calculation of setback width as a function of watershed area); and/or
- b) Implementing active and/or passive restoration measures, including managed bank retreat with vegetation restoration only, through Farm Plan implementation and/or participation in a reach-based habitat enhancement project, including the Rutherford Napa River Restoration, the Oakville to Oak Knoll Napa River Restoration, the Carneros Creek Adaptive Management Plan, and/or any other reach or tributary scale stewardship plan, that has been reviewed and approved by the Water Board.

Note: all permittees must prepare the stream-riparian element of the Farm Plan as specified below in Section 5.

5. Required Elements of the Farm Plan

The Farm Plan shall include all of the following elements:

- a) Base map(s) (as specified above);
- b) Conservation practices to control discharges of agrichemicals;
Conservation practices to control Farm Area sediment discharge and to attenuate peak runoff;
- c) Conservation practices to reduce sediment discharge and attenuate peak runoff associated with property access roads;
- d) Stream-riparian habitat characterization, and as applicable, a description of conservation practices implemented;
- e) Water quality controls for reservoirs that receive recycled wastewater, and which may discharge to surface waters of the State (as applicable); and

¹³ An unconfined reach, is where the valley width is greater than four-times the bankfull channel width. Examples of unconfined alluvial channel reaches include: a) almost the entire length of the Napa River and Sonoma Creek; and b) also along their tributaries where they exit canyons to traverse alluvial fans or valleys.

¹⁴ No vineyard avenues, roads, or rows can be maintained within the setback, which is measured perpendicular to the channel beginning at the top of the bank. Where the stream setback width required by the local land-use authority is greater than 1.5 times the bankfull channel width, the full width of the locally required stream setback must be complied with in order to qualify for Tier 1 designation under the General Permit.

f) Photo point monitoring.

Progress toward achievement of the performance standards for unpaved roads, and bed and bank erosion shall be reported as part of the annual compliance report (See Attachment E, Table E-1).

Where the deadline for the achievement a performance standard is later than the date of completion of the Farm Plan (Table 1), the Farm Plan shall include a time schedule for achievement of the performance standard, and milestones to gauge incremental progress.

Agrichemical controls

The Farm Plan shall describe the BMPs that are in-place and those that will be implemented to control discharges of agrichemicals including all nutrients and pesticides. This element of the Farm Plan shall describe practices for safe storage, mixing, and loading of agrichemicals, and/or to protect against discharges to surface and groundwater that could contribute to a violation of water quality standards. Specifically this element of the Farm Plan shall be developed and implemented to attain the performance standards for pesticide management and nutrient management as specified above. Performance standards for nutrient management and pesticide management must be achieved by the date of completion of the Farm Plan, which for an existing Vineyard Property is within three years of adoption of this Order, and for a new Vineyard Property, is within three years of adoption of this order or by the completion of vineyard construction (whichever date is later)¹⁵.

Farm Area sediment discharge and peak runoff controls

The Farm Plan shall describe the BMPs that are in-place and those that will be implemented within the Farm Area, which includes at a minimum the vineyard blocks and avenues, to control sediment delivery to stream channels and to attenuate peak storm runoff. Specifically this element of the Farm Plan shall be developed and implemented to attain the performance standards for vineyard soil erosion, and as applicable, for storm runoff from a Hillslope Vineyard (as specified above).

The performance standards for vineyard soil erosion must be achieved by the date of completion of the Farm Plan, which for an existing Vineyard Property is within three years of adoption of this Order, and for a new Vineyard Property, by the completion of construction of the new vineyard.

The performance standards for storm runoff from a Hillslope Vineyard - as related to bed and bank erosion - must be achieved: a) at an existing Hillslope Vineyard, within six years of adoption of this Order; and b) at a new Hillslope Vineyard, within six years of the completion of vineyard construction.

At a new Hillslope Vineyard, in addition to required monitoring and reporting (specified in Attachment E), achievement of the performance standard for peak runoff shall be evaluated through site-specific hydrologic modeling, and the Hydrologic Model shall be appended to the

¹⁵ Whichever date is later is specified to allow new vineyards constructed in the year following permit adoption sufficient time to achieve compliance.

Farm Plan. In preparing the hydrologic model, ripping of soils may not be inferred to result in an improvement with regard to infiltration capacity.

Road sediment discharge and peak runoff controls

The Farm Plan shall describe the BMPs that are in-place and those that will be implemented throughout the Vineyard Property to control sediment delivery to stream channels and attenuate storm runoff peak from existing unpaved roads, and also from all new roads including unpaved and paved roads. Specifically this element of the Farm Plan shall be developed and implemented at a hillslope Vineyard Property, to attain the performance standards for existing unpaved roads including those for percent road length that is hydrologically connected, plug potential, stream diversion potential, and also for storm-proofing of all new roads (as specified above). At an existing hillslope Vineyard Property, road-related performance standards for existing unpaved roads must be achieved within ten years of adoption of this order. At a new hillslope Vineyard Property, road-related performance standards for existing unpaved roads must be achieved within ten years of completion of construction of the vineyard. All new roads constructed within a hillslope Vineyard Property, must be storm-proofed by the completion of construction.

Stream-Riparian Habitat Characterization

The entire stream network including swales, ephemeral channel reaches, intermittent channel reaches, and perennial channel reaches shall be delineated throughout the Vineyard Property. All channel reaches shall be classified and delineated as confined, moderately confined (alluvial), and unconfined (alluvial). Channel condition within moderately confined alluvial channel reaches, and unconfined alluvial channel reaches¹⁶ shall be assessed to describe the active channel including:

- Active channel width,
- Bars, pools, and riffles,
- Large woody debris,
- Summer baseflow,
- Flood levels,
- Bank heights,
- Bank erosion areas,

¹⁶ Channel confinement defines the ratio of the valley width (VW) to the channel width (CW). Where $VW < 2CW$ a channel is classified as confined. Where $VW > 4CW$, a channel is classified as unconfined. Moderately confined channels are where $CW < VW < 4CW$. Within the Napa River and Sonoma Creek watersheds, unconfined alluvial channel reaches are where the adverse impacts of channel incision on habitat complexity and floodplain connectivity are most pronounced. Examples of unconfined alluvial channel reaches include: a) almost the entire length of the Napa River and Sonoma Creek; and b) also along their tributaries where they exit canyons to traverse alluvial fans or valleys. Unconfined alluvial channel reaches provide essential habitat for: a) exceptionally diverse assemblages of native fishes; b) all of the potential habitat for Chinook salmon; and c) much of the potential habitat for steelhead. The steeper and more confined tributary channel reaches, with step-pool and/or cascade bedform types, that also provide part of the habitat network for steelhead, are classic sediment transport reaches that are much less sensitive to incision. However, substantial changes in large woody debris loading in these reaches can change reach scale habitat structure and complexity.

- Riparian corridor width and proximity to the Farm Area,
- Description of the vegetation types and sizes within the riparian corridor including the extent of non-native/invasive species,
- Observations of fish and wildlife,
- Locations of roads, on- or off-channel reservoirs, and/or other features upstream or downstream (e.g., grade control structures, bank stabilization structures, road crossings) that may affect bed and bank erosion locally or at reach scale, and
- Description of the management regime for the channel and/or corridor management.

Consistent with U.S. EPA's Section 404(b)(1) Guidelines for Dredge and Fill Material, in determining the circumstances under which stream or wetland filling may be permitted, in general, it is preferable to avoid disturbance. When this is not possible, disturbance should be minimized. Mitigation for lost stream or wetland acreage and habitat values through restoration or creation should only be considered after disturbance has been minimized. Marin RCD (2007) and Cramer et al. (2012) provide useful guidance with regard to streambank stabilization techniques for stream channels that are consistent with the protection of ecological and geomorphic functions. Fischenich (2001) provides useful information regarding stability thresholds for bioengineering techniques. An example of an acceptable approach, with regard to level of detail¹⁷ is as described in Sonoma County RCD et al. (2016).

Stream and Riparian Habitats Performance Standard¹⁸

Vineyard Properties with that have a Certified Verified Farm Plan that is fully implemented, and that have attained the Performance Standard for Stream and Riparian Habitats, as applicable, are eligible for enrollment under Tier 1. Table 2 presents the relationship between bankfull channel width and watershed area within the permit area.

Water quality controls for reservoirs that receive recycled wastewater and which may discharge to surface waters of the State¹⁹ (only as applicable)

The Farm Plan shall describe the BMPs that are in-place and/or that will be implemented to protect water quality in downstream water bodies located on parcels under the same ownership as the discharger, as related to operation and maintenance of reservoirs that receive recycled water, and which may discharge to surface waters of the State. This element shall detail operation and maintenance activities of these reservoirs, design overflow conditions, and the drainage location(s) during overflow and/or maintenance. The Discharger shall consider the timing, magnitude, and duration of water released from these reservoir(s) to downstream

¹⁷ Please note that LandSmart is revising the Farm Plan Template (Version 3.0) to include information regarding summer baseflow, and also flood levels.

¹⁸ This performance standard for stream and riparian habitats is not applicable at Vineyard Properties that do not include unconfined alluvial channels. Such properties also qualify for enrollment under Tier 1 upon full implementation of a Verified Farm Plan that attains applicable performance standards for discharge (as defined in Section 3 of this Attachment).

¹⁹ These include reservoirs constructed on-channel, and/or off-channel reservoirs that include spillways where subsequent to overflow there would be a discharge to surface waters of the State.

waterbodies including minimizing the discharge of recycled water. The Discharger shall implement erosion and sediment control BMPs to prevent potential erosion impacts to creeks at the point of discharge and downstream of the discharge. The discharger shall take measures to enhance downstream riparian areas including as applicable eradicating non-native species in downstream riparian areas within the Vineyard Property, augmenting gravel and wood supply to downstream channel reaches, and/or riparian habitat enhancement. The Farm Plan also shall include appended Water Rights permits or licenses that apply to the reservoir and describe management measures and reporting measures to ensure compliance with any bypass requirements and ensure net environment benefit associated with the use and storage of recycled water.

Photo point monitoring

The Farm Plan shall include photo point monitoring data as specified in Attachment E (Monitoring and Reporting).

References

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Table 1. Summary of Deadlines for Compliance

Existing Vineyard Property		New Vineyard Property	
Farm Plan: completed and Verified ²⁰	Within three years of adoption of this Order	Farm Plan: completed and Verified	By completion of vineyard construction or within three years of adoption of this Order (whichever date is later)
Performance Standards for new roads	By completion of construction	Performance Standards for new roads	By completion of vineyard construction
Performance Standards for Soil erosion in the Farm Area, Pesticide Management, and Nutrient Management	Within three years of adoption of this Order	Performance Standards for Soil erosion in the Farm Area, Pesticide Management, and Nutrient Management	By completion of vineyard construction
Performance Standards for Bed and Bank Erosion	Within six years of adoption of this Order (see note below)	Performance Standards for Bed and Bank Erosion	Within six years of vineyard construction (see note below)
Performance Standards for Peak Runoff	(see note below)	Performance Standards For Peak Runoff	Assessed via modeling By completion of vineyard construction (see note below)
Performance Standards for existing unpaved roads	Within ten years of adoption of this Order	Performance Standards for existing unpaved roads	Within ten years of completion of vineyard construction

Note 1: The effectiveness of BMPs implemented to attain performance standards for storm runoff from Hillslope Vineyards also shall be validated via required monitoring (see Attachment E).

Note 2: The performance standards listed in Table 1 are abbreviated from Section 3 (Performance Standards for Discharge) beginning on p. A-3. The performance standards for new roads are described on p. A-4 (see Storm-Proofed Roads); the performance standards for Bed and Bank Erosion are described on p. A-5 (see Bed and Bank Erosion); the performance standards for Peak Runoff are described on p. A-4 (see Peak Storm Runoff); the performance standards for soil erosion in the Farm Area, Pesticide Management, and Nutrient Management on p. A-3; and the performance standards for existing unpaved road are described on p. A-3.

²⁰**If a Discharger chooses to develop the Farm Plan independently, the Farm Plan must be submitted to the Water Board for review/approval.** For an existing Vineyard Property, the deadline for submittal is within two years of adoption of this Order. For a new Vineyard Property, the deadline for submittal is within two years of adoption of this Order, at the time of vineyard construction, whichever date is later.

Table 2. Relationship between Bankfull Channel Width and Watershed Area (Marcus, 2015)

(Bankfull Width in feet = $13.03 * [\text{Watershed Area, mi}^2]^{0.494}$; $R^2 = 0.76$; N = 50 sites)

Watershed Area (mi ²)	Estimated Bankfull Channel Width (ft)
0.1	4
0.2	6
0.5	9
1	13
2	18.5
3	23
4	26
5	29
8	37
10	41
15	50
20	59
50	93
100	131